

******RESEARCH BRIEF******

**Gateway Careers 1998-2008:
Emerging Occupations, Essential Skills**

*by
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As we move into the 21st century, the connection between well paying jobs and skills has never been more apparent. In today's economy, workers with marketable skills are able to be more competitive in the labor market. These high-skill workers are finding employment in occupations characterized by job security, advancement opportunities and high wages - what we call Gateway Careers.

Gateway Careers are those occupations that pay well, are in demand and require a high degree of skill. Emerging occupations are defined as possessing both well above average wages and well above average job growth over ten years. Essential skills are defined as skills of high importance and high proficiency required for these emerging occupations. Essential knowledge domains are defined as organized sets of principles and facts of high importance and high proficiency required for these emerging occupations. Occupations, skills and knowledge domains were included if they were 1.0 or more standard deviation above the mean for all occupations, usually placing them in the top 30th percentile.

Missouri's top emerging occupations were:

- Systems Analysts
- Computer Engineers
- Securities/Commodities/Finance Services Agents
- Engineering/Natural Science/Computer/Information Systems Managers

Essential skills for Missouri's emerging occupations were:

- Critical Thinking
- Active Learning
- Reading Comprehension
- Writing
- Science
- Speaking

Essential knowledge domains for Missouri's emerging occupations were:

- Computers and Electronics
- Administration and Management
- Mathematics
- Economics and Accounting

Emerging occupations possess both well above average wages and well above average job growth between 1998 and 2008. Occupations with the largest number of annual openings and the largest employment base in 1998 were Systems Analysts, Computer Engineers, Securities/Commodities/Finance Services Agents, and Engineering/Natural Science/Computer/Information Systems Managers.

Occupations with the fastest percent change growth were Computer Scientists, Computer Engineers, and Systems Analysts.

Occupations with the highest average hourly wage were Postsecondary Health Diagnostics Teachers, Engineering/Natural Science/Computer/Information Systems Managers, Systems Analysts, and Computer Engineers.

In addition, most emerging occupations required some type of higher education, usually a bachelor's degree or more.

Emerging Occupations in Missouri, 1998-2008

Occupations with high growth and high wages.
Threshold is 1.0 or more standard deviation above the mean.

EMERGING OCCUPATIONS	EMPLOYMENT AND WAGES					
	Annual Openings 1998-2008	Employment 1998	Employment 2008	Percent Change	Hourly Wage	Required Education and Experience
Systems Analysts	720	10,370	16,930	63.3%	\$26.63	Bachelor's
Computer Engineers	280	3,560	6,190	73.9%	\$26.45	Bachelor's
Securities/Comdts/Finance Serv Sales Agents	280	5,920	8,230	39.0%	\$24.33	Bachelor's
Engr/Nat Sci/Computer/Info Systems Mgrs	260	5,770	7,370	27.7%	\$33.49	Bachelor's + Work Exp
Computer Scientists, NEC	160	1,840	3,350	82.1%	\$22.59	Bachelor's
Speech Pathologts/Audiologists	120	2,350	3,170	34.9%	\$19.33	Master's
Database Administrators	110	1,780	2,530	42.1%	\$25.05	Bachelor's
Dental Hygienists	110	2,010	2,610	29.9%	\$19.36	Associate's
Physician Assistants	70	1,260	1,710	35.7%	\$20.24	Bachelor's
Financial Analysts, Statistical	60	1,020	1,420	39.2%	\$23.99	Bachelor's
Sheet Metal Duct Installers	60	960	1,240	29.2%	\$19.52	Moderate-term OJT
Health Diagnostics Teachers, Postsecondary	50	710	1,020	43.7%	\$35.70	Doctoral

Source: Analysis of Occupational Employment Statistics by MERIC, MO Department of Economic Development.

Skills are considered essential if they are of high importance and require high proficiency in the emerging occupations. Essential skills for Missouri's emerging occupations were:

- **Critical Thinking** - Using logic and analysis to identify the strengths and weaknesses of different approaches.
- **Active Learning** - Understanding and working with new material or information to grasp its implications.
- **Reading Comprehension** - Understanding written sentences and paragraphs in work related documents.
- **Writing** - Communicating effectively with others in writing as indicated by the needs of the audience.
- **Science** - Using scientific methods to solve problems.
- **Speaking** - Talking to others to effectively convey information.

Occupations that require the most diversified number of essential skills were Securities/Commodities/Finance Services Agents, Speech Pathologist/Audiologists, and Postsecondary Health Diagnostics Teachers.

Essential Skills for Emerging Occupations

Skills of high importance and high proficiency required for the occupation.
Threshold is 1.0 or more standard deviation above the mean.

SKILLS	EMERGING OCCUPATIONS											
	Systems Analysts	Computer Engineers	Securities/Comdts/ Finance Serv Agents	Engr/Nat Sci/Computer/Info Systems Mgrs	Computer Scientists, NEC	Speech Pathologts/Audiologists	Database Administrators	Dental Hygienists	Physician Assistants	Financial Analysts, Statistical	Sheet Metal Duct Installers	Health Diagnostics Teachers, Postsecondary
Reading Comprehension	X			X		X			X	X		X
Active Listening			X			X			X			X
Writing	X		X	X	X	X						X
Speaking			X	X		X			X			X
Mathematics		X	X				X			X		
Science		X			X	X		X	X			X
Critical Thinking		X	X	X		X			X	X		X
Active Learning		X	X	X		X			X	X		X
Learning Strategies			X		X	X						X
Monitoring			X	X								X

Source: Analysis of Occupational Employment Statistics and O*NET by MERIC, MO Department of Economic Development.

Knowledge domains are considered essential if they are of high importance and require high proficiency in the emerging occupations. Knowledge domains are organized sets of principles and facts applying in general domains, usually corresponding to academic programs. Essential knowledge domains for Missouri's emerging occupations were:

- **Computers and Electronics** - Knowledge of electric circuit boards, processors, chips, and computer hardware and software, including applications and programming.
- **Administration and Management** - Knowledge of principles and processes involved in business and organizational planning, coordination, and execution. This includes strategic planning, resource allocation, manpower modeling, leadership techniques, and production methods.
- **Mathematics** - Knowledge of numbers, their operations, and interrelationships including arithmetic, algebra, geometry, calculus, statistics, and their applications.
- **Economics and Accounting** - Knowledge of economic and accounting principles and practices, the financial markets, banking, and the analysis and reporting of financial data.

Occupations that require the most diversified number of essential knowledge domains were Computer Engineers, Postsecondary Health Diagnostics Teachers, and Engineering/Natural Science/Computer/Information Systems Managers.

Essential Knowledge Domains for Emerging Occupations

Knowledge domains of high importance and high proficiency required for the occupation.

Threshold is 1.0 or more standard deviation above the mean.

KNOWLEDGE DOMAINS	EMERGING OCCUPATIONS											
	Systems Analysis	Computer Engineers	Securities/Comdts/ Finance Serv Agents	Engr/Nat Sci/Computer/Info Systems Mgrs	Computer Scientists, NEC	Speech Pathologists/Audiologists	Database Administrators	Dental Hygienists	Physician Assistants	Financial Analysts, Statistical	Sheet Metal Duct Installers	Health Diagnostics Teachers, Postsecondary
Administration & Management		X		X	X	X	X					X
Clerical		X										
Economics & Accounting		X	X	X		X				X		
Sales & Marketing			X									
Customer & Personal Service		X										
Personnel & Human Resources				X		X						
Transportation												
Production & Processing											X	
Food Production												
Computers & Electronics	X	X		X	X		X			X	X	
Engineering & Technology		X		X								
Design		X									X	
Building & Construction											X	
Mechanical											X	
Mathematics		X	X	X						X		X
Physics												
Chemistry									X			X
Biology						X		X	X			X
Psychology				X					X			X
Sociology & Anthropology												X
Geography												
Medicine & Dentistry						X		X	X			X
Therapy & Counseling						X			X			X
Education & Training	X	X				X						X
English Language				X		X						X
Foreign Language						X						
Fine Arts												
History & Archeology												
Philosophy & Theology												
Public Safety & Security												
Law & Government				X						X		
Telecommunications	X	X		X								
Communications & Media		X										X

Source: Analysis of Occupational Employment Statistics and O*NET by MERIC, MO Department of Economic Development.